

In the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently amended) An analog signal measuring device for measuring an analog signal, the analog signal measuring device comprising:
a digital controller for generating a measured value of the analog signal, comprising:
a pulse width modulation (PWM) controller for outputting a programmable pulse signal having a pulse width that is adjustable so as to measure the analog signal; and
a counter having a frequency that is based on the frequency of the programmable pulse signal;
a waveform converter, coupled to the PWM controller, for generating and outputting a carrier signal according to the programmable pulse signal; and
a comparator, coupled to the waveform converter and the counter of the digital controller, for comparing the carrier signal to the analog signal and then generating a comparison pulse signal, which enables the counter to start counting and to generate a count value, wherein the digital controller ~~gets~~ generates a measured value of the analog signal according to the count value.
2. (Original) The analog signal measuring device according to claim 1, wherein the analog signal is inversely proportional to a duty cycle of the comparison pulse signal.

3. (Original) The analog signal measuring device according to claim 2, wherein the comparison pulse signal has a positive edge for enabling the counter to start counting, and a negative edge for disabling the counter from counting.
4. (Original) The analog signal measuring device according to claim 1, wherein the analog signal is a DC voltage.
5. (Original) The analog signal measuring device according to claim 1, wherein the waveform converter is an RC circuit.
6. (Original) The analog signal measuring device according to claim 1, wherein the waveform converter is a triangle wave generating circuit.
7. (Currently amended) The analog signal measuring device according to claim 1, wherein the digital controller further comprises an interrupt controller, which is coupled between the comparator and the counter, for enabling and disabling the counter according to the comparison pulse signal.
8. (Original) The analog signal measuring device according to claim 7, wherein the analog signal is directly proportional to a duty cycle of the comparison pulse signal.
9. (Original) The analog signal measuring device according to claim 7, wherein the comparison pulse signal has a positive edge and a negative edge, the interrupt controller

utilizes one of the positive edge and the negative edge to enable the counter to start counting, and the other of the positive edge and the negative edge to disable the counter from counting.

10. (Original) The analog signal measuring device according to claim 9, wherein the analog signal is inversely proportional to a duty cycle of the comparison pulse signal.

11. (Original) The analog signal measuring device according to claim 7, wherein the analog signal is a DC voltage.

12. (Currently amended) An analog signal measuring method utilizing a digital controller having a counter to measure an analog signal, the analog signal measuring method comprising the steps of:

(k). outputting a programmable pulse signal having a pulse width that is adjustable so as to measure the analog signal by the digital controller;

(m). generating a carrier signal according to [[a]]the programmable pulse signal;

(o). comparing the carrier signal to the analog signal and thus generating a comparison pulse signal; and

(p). in response to the comparison pulse signal, enabling the counter to start counting and to generate a count value according to the comparison pulse signal, and getting a measured value of the analog signal according to the count value by the digital controller, wherein the frequency of the counter is based on the frequency of the programmable pulse signal.

13. (Original) The method according to claim 12, wherein the carrier signal is a triangle wave.
14. (Original) The analog signal measuring method according to claim 12, wherein the carrier signal is a sawtooth wave.
15. (Currently amended) The analog signal measuring method according to claim 12, wherein step (m) comprises the steps of:
determining a pulse width of the programmable pulse signal according to a low-voltage level; and
generating the carrier signal according to the programmable pulse signal.
16. (Original) The analog signal measuring method according to claim 12, wherein the comparison pulse signal has a positive edge and a negative edge, and the step (p) comprises the steps of:
setting the digital controller to a negative-edge trigger interruption mode;
triggering the digital controller by the negative edge to enable the counter to start counting, and setting the digital controller to a positive-edge trigger interruption mode;
triggering the digital controller by the positive edge to disable the counter from counting;
and
getting the measured value of the analog signal according to the count value.

17. (Original) The analog signal measuring method according to claim 16, wherein the carrier signal is a triangle wave.
18. (Original) The analog signal measuring method according to claim 17, wherein the analog signal is a DC voltage.
19. (Currently amended) The analog signal measuring method according to claim 16, wherein the step (m) includes the steps of:
determining a pulse width of the programmable pulse signal according to a low-voltage level; and
generating the carrier signal according to the programmable pulse signal.